REMARKS

In the Office Action, claims 27 and 28 are rejected under 35 U.S.C. § 112, first paragraph, and claims 27-32 were rejected under 35 U.S.C. §102(e), or alternatively under 35 U.S.C. § 103, in view of U.S. Patent No. 6,773,692 to Pecharsky et al. ("Pecharsky"). Claims 27 and 28 are amended herein. Applicants respectfully submit that the rejections have been overcome for at least the reasons below.

In the Office Action, claims 27 and 28 are rejected under 35 U.S.C. § 112, first paragraph. As previously provided, claims 27 and 28 are directed to a hydrogen occluding material and a method for using a hydrogen occluding material, respectively. In Applicants' response to the Office Action dated June 12, 2006, these claims were amended to further recite wherein the aluminum hydride has a hydrogen capacity greater than an alanate, and wherein the hydrogen occluding material is capable of releasing a greater amount of hydrogen gas at a lower temperature as compared to alanate. Claims 27 and 28 have been further amended to include that the hydrogen occluding material is capable of releasing a greater amount of hydrogen gas in one stage at a lower temperature in the absence of mechanical treatment in an inert environment as compared to alanate. Applicants believe that these amendments are fully supported in the specification as provided in the present published application (e.g., US2005/0164878) as described in further detail below.

For example, the present published application provides it is apparent from Figure 1 that aluminum hydride (e.g., AlH_3) releases hydrogen at a lower temperature than alanate (e.g., $NaAlH_4$). It is also apparent from Figure 1 that aluminum hydride releases hydrogen in one stage, whereas alanate releases hydrogen (due to thermal disassociation) in two stages. The patched area in Figure 1 corresponds to the amount of hydrogen release. Therefore, it is apparent that aluminum hydride releases more hydrogen than alanate where the amount of hydrogen released from the hydride as claimed is 9 weight percent, which is close to the theoretical value. See, US2005/0164878, paragraph [0058]. Moreover, the theoretical value for the amount of hydrogen released from alanate is 5.6 weight percent. See, US2005/0164878, paragraph [0011].

Further, the hydrogen occluding material is capable of releasing hydrogen gas in the absence of mechanical treatment in an inert environment as claimed. Support for this claim feature can be found, for example, in Example 3. In this example, the aluminum hydride (e.g.,

AlH_3) was prepared according to Example 1. The aluminum hydride was then doped with titanium without mechanical pulverization by ball milling as provided in Example 2. See, US2005/0164878, Example 1-3). To the extent even considered mechanical treatment to one skilled in the art, doping was facilitated by mixing the two components (in powder form) in an agate mortar for about 5 minutes. See, US 2005/0164878, paragraph [0061].

Based on at least these reasons, Applicants respectfully submit that the claims are fully supported in the specification, and thus, the rejection with respect to 35 U.S.C. § 112, first paragraph, should be withdrawn.

In the Office Action, claims 27-32 are rejected for alleged anticipation, or alternatively obviousness, reasons in view of the Pecharsky reference. As previously provided, independent claims 27 and 28 recite that the aluminum hydride has a hydrogen capacity greater than an alanate and that the hydrogen occluding material is capable of releasing a greater amount of hydrogen gas in one stage at a lower temperature in the absence of mechanical treatment in an inert environment. Support for these claim features is provided in Applicants specification as detailed above.

In contrast, the Pecharsky reference is directed to a hydride-based solid material that is mechanically processed in the presence of a catalyst to obtain pure gaseous hydrogen. See Pecharsky, Abstract. The mechanical processing can be carried out in any suitable apparatus which delivers mechanical energy into the compounds located inside the apparatus. For example, a shaker-type ball-mill, a planetary mill or an attritor mill can be utilized. See, Pecharsky, column 5, lines 29-36. Preferably, the mechanical processing is conducted in a chemically inert atmosphere, such as an inert gas atmosphere (e.g., argon, etc...). See, Pecharsky, column 5, lines 5-9.

As the claimed invention specifically requires, the hydrogen occluding material is capable of releasing hydrogen gas in one stage at a lower temperature in the absence of mechanical treatment in an inert environment. Illustrative Example 3 of Applicants' present published application does not include mechanical processing, to the extent provided in Pecharsky as discussed above, let alone in an inert environment. Clearly, one skilled in the art should recognize the differences between the claimed invention and Pecharsky at least in view of same.

Accordingly, Applicants respectfully submit that the anticipation rejection, and alternative obviousness rejection in view of Pecharsky should be withdrawn.

For the foregoing reasons, Applicants submit that the present application is in condition for allowance and earnestly solicit reconsideration of same. The Commissioner is hereby authorized to charge deposit account 02-1818 for any fees which are due and owing.

Respectfully submitted,

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